

REMARKS

Claims 1-71 are pending and under current examination.

In the Office Action,¹ the Examiner :

- (a) rejected claims 1, 2, 4, 16, 17, 19, 31, 32, 34, 46, 47, 49, 63-65 under 35 U.S.C. § 103(a) as being unpatentable over *Flockhart et al.* (U.S. Patent No. 6064731) ("*Flockhart*"), in view of *Horowitz et al.* (U.S. Patent No. 6349290) ("*Horowitz*");
- (b) rejected claims 3, 6, 8, 10, 12, 13, 18, 21, 23, 25, 27, 28, 33, 36, 38, 40, 42, 43, 48, 51, 53, 55, 57, 58, 66-69 under 35 U.S.C. § 103(a) as being unpatentable over *Flockhart*, in view of *Horowitz*, and further in view of *Bank Marketing International* article entitled "Are your customers profitable?" ("*Bank Marketing*");
- (c) rejected claims 61, 62, 70, 71 under 35 U.S.C. § 103(a) as being unpatentable over *Flockhart*, in view of *Horowitz*, and further in view of *Sanders* (U.S. Patent No. 6411936) ("*Sanders*"); and
- (d) objected to claims 5, 7, 9, 11, 14, 15, 20, 22, 24, 26, 29, 30, 35, 37, 39, 41, 44, 45, 50, 52, 54, 56, 59, and 60 as being dependent upon a rejected base claim, but stated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant acknowledges with thanks the Examiner's indication of allowable subject matter. However, Applicant respectfully traverses the rejections for the following reasons.

¹ The Office Action may contain statements characterizing the related art, case law, and claims. Regardless of whether any such statements are specifically identified herein, Applicants decline to automatically subscribe to any statements in the Office Action.

Rejection of Claims 1, 2, 4, 16, 17, 19, 31, 32, 34, 46, 47, 49, and 63-65 under 35 U.S.C. § 103(a):

Applicant traverses the rejection of claim 1, 2, 4, 16, 17, 19, 31, 32, 34, 46, 47, 49, and 63-65 under 35 U.S.C. § 103(a) as being unpatentable over *Flockhart*, in view of *Horowitz*. A *prima facie* case of obviousness has not been established. As M.P.E.P. § 2142 states, “[t]he examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness.”

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). M.P.E.P. § 2142, 8th Ed., Rev. 5 (August 2006), p. 2100-125, 126.

Each of these requirements must “be found in the prior art, and not be based on applicant’s disclosure.” M.P.E.P. § 2143. In this application, no *prima facie* case of obviousness has been established for at least the reasons that the cited references fail to teach each and every element recited in the claims. Despite the Examiner’s allegations, *Flockhart* does not disclose at least a “hazard function model”, as recited in claim 1.

Claim 1 recites “[a] method . . . comprising: generating, by a processing system, a hazard function model based on attributes relating to a plurality of current customer

accounts . . . ". The Examiner alleged that "the 'at risk' customer function [of *Flockhart*] represents the hazard function model" (Office Action, p. 2). However, this is not correct.

Applicant's specification states: "[a] hazard function is a formula representing the probability of a customer's termination of service based on previous behavior derived from a stored data" (p.3, lines 2-4), and "expected tenure of a customer can be determined" from the hazard function (p.7, lines 16-17). As specified in the M.P.E.P., "During patent examination, the pending claims must be 'given their broadest reasonable interpretation consistent with the specification.' (M.P.E.P. § 2111, 8th Ed., Rev. 5 (August 2006), emphasis added). Accordingly, the "at risk" customer function of *Flockhart* does not constitute the claimed "hazard function model".

Flockhart discloses that "at risk" customers are those "who have received poor service or are otherwise dissatisfied" (col 1, lines 21-22), and that "[w]hile the call is being monitored, if it is delivered to an agent 106 for handling . . . the customer is considered to be 'at risk', and so processor 204 enters the obtained identifier of the party in 'at risk' database 380" (col 4, lines 25-31). Thus, the "at risk" customer function of *Flockhart* noted by the Examiner merely is a database of customers "who have received poor service or are otherwise dissatisfied". The "at risk" customer function of *Flockhart* therefore is not "a formula representing the probability of a customer's termination of service based on previous behavior derived from a stored data", nor can "expected tenure of a customer" be determined from the "at risk" customer function of *Flockhart*. For at least this reason, the "at risk" customer function of *Flockhart* cannot constitute the claimed "hazard function model". Therefore *Flockhart* fails to teach or

suggest “generating, by a processing system, a hazard function model based on attributes relating to a plurality of current customer accounts . . .”, as recited in claim 1.

Horowitz fails to cure *Flockhart*’s deficiencies. Although *Horowitz* discloses “determining a risk level, [and] comparing the risk level to the risk tolerances to previous customers’ activity” (col 22, lines 13-14), it does not teach “generating, by a processing system, a hazard function model based on attributes relating to a plurality of current customer accounts.” as recited in claim 1.

The Examiner alleged that *Horowitz* “shows the calculation of a ‘life stage’ factor through comparison of the risk level of the advice to the risk tolerances to the previous customers’ activity” (Office Action, p.3). However, even if this allegation is correct, *Horowitz* fails to teach “generating, by a processing system, a hazard function model based on attributes relating to a plurality of current customer accounts . . .” as recited in claim 1.

For at least the foregoing reasons, neither *Flockhart* nor *Horowitz*, nor any combination thereof, teaches or suggests each and every feature of claim 1. As such, *prima facie* obviousness has not been established. Accordingly, the § 103(a) rejection of that claim should be withdrawn.

Each of independent claims 16, 31, and 46 recites, in part, “generating a hazard function model based on attributes relating to a plurality of current customer accounts”. As set forth above, neither *Flockhart* nor *Horowitz*, nor any combination thereof, teaches or suggests a combination including, for example, “generating a hazard function model” as recited in the claims. For at least this reason, no *prima facie* case of obviousness

has been established. The 35 U.S.C. § 103(a) rejection of claims 16, 31, and 46 is therefore improper and should be withdrawn.

Claim 63 recites "[a] method, performed by a processing system . . . identifying a temporal-based retention effort based on the hazard function for each of the plurality of customers . . . ". The Examiner alleged that *Flockhart* discloses "if there is an 'at risk' customer, some kind of special treatment is implemented" (Office Action, p.5). However, *Flockhart* does not disclose that the special treatment is identified based on the claimed "hazard function". Therefore *Flockhart* fails to disclose "identifying a temporal-based retention effort based on the hazard function for each of the plurality of customers" as recited in claim 63.

Again, *Horowitz* does not cure *Flockhart*'s deficiencies. *Horowitz* merely describes "downgrading the risk tolerance of an individual in the customer profile 94, if the advice had a risk factor involved, and updating the customer's 'life stage' factor in the customer profile 94, if the advice was aimed at a long term goal" (col 22, lines 14-18). The Examiner alleged that *Horowitz* "shows the calculation of a 'life stage' factor through comparison of the risk level of the advice to the risk tolerances to the previous customers' activity, where the advice given represents the retention effort" (Office Action, p.6). However, even if this allegation is correct, *Horowitz* fails to teach "identifying a temporal-based retention effort based on the hazard function for each of the plurality of customers" as recited in claim 63.

For at least the foregoing reasons, the applied references, taken alone or in combination, fail to teach or suggest each and every element recited in claim 63.

Accordingly, *prima facie* obviousness has not been established and the rejection of claim 63 under 35 U.S.C. § 103(a) should be withdrawn.

In view of the foregoing, Applicant requests withdrawal of the rejection of independent claims 1, 16, 31, 46, and 63 under 35 U.S.C. § 103(a) and the timely allowance of these claims. Applicant also requests withdrawal of the § 103(a) rejection and the timely allowance of claims 2, 4, 17, 19, 32, 34, 47, 49, 64, and 65, at least because each of these claims depends upon one of base claims 1, 16, 31, 46, and 63. See, *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Rejection of Claims 3, 6, 8, 10, 12, 13, 18, 21, 23, 25, 27, 28, 33, 36, 38, 40, 42, 43, 48, 51, 53, 55, 57, 58, and 66-69 under 35 U.S.C. § 103(a):

Applicant traverses the rejection of claims 3, 6, 8, 10, 12, 13, 18, 21, 23, 25, 27, 28, 33, 36, 38, 40, 42, 43, 48, 51, 53, 55, 57, 58, and 66-69 under 35 U.S.C. § 103(a) as being unpatentable over *Flockhart*, in view of *Horowitz*, and further in view of *Bank Marketing*, because *prima facie* obviousness has not been established with respect to these claims.

Claims 3, 6, 8, 10, 12, 13, and 66 depend upon base claim 1; claims 18, 21, 23, 25, 27, 28, and 67 depend upon base claim 16; claims 33, 36, 38, 40, 42, 43, and 68 depend upon base claim 31; and claims 48, 51, 53, 55, 57, 58, and 69 depend upon base claim 46. As explained above, neither *Flockhart* nor *Horowitz* teach or suggest "a hazard function model" as recited in claims 1, 16, 31, and 46 and required by dependent claims 3, 6, 8, 10, 12, 13, 18, 21, 23, 25, 27, 28, 33, 36, 38, 40, 42, 43, 48, 51, 53, 55, 57, 58, and 66-69.

Bank Marketing does not cure the deficiencies of *Flockhart* and *Horowitz*.

Although *Bank Marketing* discloses predicting “the length of time a customer is likely to stay with [a bank],” it does not teach or suggest “a hazard function model” as recited in claims 1, 16, 31, and 46 and required by claims 3, 6, 8, 10, 12, 13, 18, 21, 23, 25, 27, 28, 33, 36, 38, 40, 42, 43, 48, 51, 53, 55, 57, 58, and 66-69. The Examiner alleged that *Bank Marketing* “shows that altered models are used to determine the likelihood of a customer switching” (Office Action, p.8). However, even if this allegation is correct, *Bank Marketing* fails to teach “a hazard function model” as recited in claims 1, 16, 31, and 46 and required by the dependent claims.

Accordingly, neither *Flockhart*, *Horowitz*, *Bank Marketing*, nor any combination thereof, teaches or suggests all of the features recited in claims 1, 16, 31 and 46 and required by dependent claims 3, 6, 8, 10, 12, 13, 18, 21, 23, 25, 27, 28, 33, 36, 38, 40, 42, 43, 48, 51, 53, 55, 57, 58, and 66-69. For at least this reason, no *prima facie* case of obviousness has been established with respect to claims 3, 6, 8, 10, 12, 13, 18, 21, 23, 25, 27, 28, 33, 36, 38, 40, 42, 43, 48, 51, 53, 55, 57, 58, and 66-69. The § 103(a) rejection of those claims should be withdrawn.

Rejection of Claims 61, 62, 70, and 71 under 35 U.S.C. § 103(a):

Applicant traverses the rejection of claims 61, 62, 70, and 71 under 35 U.S.C. § 103(a) as being unpatentable over *Flockhart*, in view of *Horowitz*, and further in view of *Sanders*, because a *prima facie* case of obviousness has not been established with respect to these claims.

Independent claim 61 recites, *inter alia*, “generating, by a multilayer feed-forward neural network, a hazard function for an existing customer, to determine probability of

churn, [and] calculating, for the customer, a gain in lifetime value based on a change in the hazard function resulting from a retention effort". For as noted above in connection with claim 1, neither *Flockhart* nor *Horowitz* teaches or suggests "generating a hazard function" as recited in claim 61.

Sanders does not cure the deficiencies of *Flockhart* and *Horowitz*. That is, *Sanders* does not teach or suggest "generating a hazard function", as claimed. The Examiner alleged that *Sanders* discloses "a multilayer feed-forward neural network" (Office Action, p.14) and "training the neural network" (Office Action, p.15). However, even if this allegation is correct, *Sanders* fails to teach "generating . . . a hazard function for an existing customer, to determine probability of churn . . ." as recited in claim 61.

The applied references, taken alone or in combination, therefore fail to teach or suggest each and every element recited in claim 61. For at least this reason, no *prima facie* case of obviousness has been established and the § 103(a) rejection of claim 61 should be withdrawn.

The requisite motivation to combine the applied references is also lacking with respect to claim 61. *Sanders* is directed to "enterprise value enhancement" within the context of knowledge management (Abstract; col. 1, lines 5-10; col. 2, lines 57-60). The Examiner's allegations set forth with respect to claim 61 do not show that a skilled artisan considering *Flockhart*, *Horowitz* and *Sanders*, and not having the benefit of Applicant's disclosure, would have been motivated to combine the references in a manner resulting in Applicant's claimed combination. The Examiner alleged that a skilled artisan would have combined *Sanders* with the alleged *Flockhart-Horowitz* combination "to incorporate a multiplayer feed-forward neural network with the

motivation of utilizing this type of intelligence to determine the possibility of churn” (Office Action, p. 14). These allegations are not properly supported and do not establish the required motivation to combine the references. The Examiner fails to provide any explanation as to why a skilled artisan would have been motivated to utilize a multiplayer feed-forward neural network to determine the possibility of churn, other than to attempt meet the terms of claim 61. The Examiner merely provided descriptions of how *Flockhart*, *Horowitz*, and *Sanders* allegedly teach certain subject matter without providing “clear and particular” reasons why a skilled artisan “would select the elements from the cited prior art references for combination in the manner claimed.” See *In re Dembicziak*, 175 F.3d at 999, 50 USPQ2d at 1617; *In re Rouffet*, 149 F.3d at 1357, 47 USPQ2d at 1457.

For at least the foregoing additional reasons, *prima facie* obviousness has not been established and the § 103(a) rejection of claim 61 should be withdrawn. Claims 62, 70, and 71 depend upon claim 61. The § 103(a) rejection of claims 62, 70, and 71 should be withdrawn as well, for at least reasons similar to those presented above in connection with claim 61.

Objection to Claims 5, 7, 9, 11, 14, 15, 20, 22, 24, 26, 29, 30, 35, 37, 39, 41, 44, 45, 50, 52, 54, 56, 59, and 60:

Since Applicant has demonstrated above that independent claims 1, 16, 31, and 46 are allowable, dependent claims 5, 7, 9, 11, 14, 15, 20, 22, 24, 26, 29, 30, 35, 37, 39, 41, 44, 45, 50, 52, 54, 56, 59, and 60 are also allowable at least by virtue of their dependence from one of allowable base claims 1, 16, 31, and 46. Accordingly, Applicant requests withdrawal of the objection.

Conclusion:

In view of the foregoing, Applicant requests reconsideration of the application and withdrawal of the rejection. Pending claims 1-71 are in condition for allowance, and Applicant requests a favorable action.

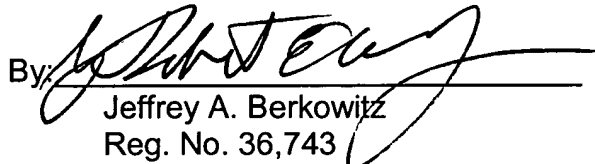
If there are any remaining issues or misunderstandings, Applicant requests the Examiner telephone the undersigned representative to discuss them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,



Dated: November 27, 2006

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